

# INTERNATIONAL SEARCH REPORT

National Application No  
/NL2004/000254

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08G83/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, CHEM ABS Data, COMPENDEX

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/100867 A (UNIV MICHIGAN ;CHOI JIWON (US); LAINE RICHARD M (US); TAMAKI RYO ( ) 19 December 2002 (2002-12-19) claim 14; example 16	1-7
A	TAMAKI R ET AL: "A POLYIMIDE NANOCOMPOSITE FROM OCTA(AMINOPHENYL)SILSESQUIOXANE" CHEMISTRY OF MATERIALS, AMERICAN CHEMICAL SOCIETY, WASHINGTON, US, vol. 15, 17 January 2003 (2003-01-17), pages 793-797, XP001153895 ISSN: 0897-4756 * page 794, right column, second paragraph *	1-7

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*A\* document member of the same patent family

Date of the actual completion of the international search

22 July 2004

Date of mailing of the international search report

29/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
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Authorized officer

Hoffmann, K

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

/NL2004/000254

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 02100867	A	19-12-2002	EP	1328529 A1	23-07-2003
			WO	02100867 A1	19-12-2002

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 21529WO	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/NL2004/000254	International filing date ( <i>day/month/year</i> ) 14 April 2004 (14.04.2004)	Priority date ( <i>day/month/year</i> ) 16 April 2003 (16.04.2003 )	
International Patent Classification (IPC) or national classification and IPC 7 C08G 83/00			
Applicant DSM IP ASSETS B.V.			

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 5 sheets, including this cover sheet.  In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input checked="" type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	<table style="width: 100%; border: none;"> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Date of issuance of this report 21 October 2005 (21.10.2005)</td> </tr> <tr> <td style="padding: 5px;"> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border-bottom: 1px solid black; padding-bottom: 5px;">Authorized officer</td> <td style="width: 50%; text-align: center; padding: 5px;">Nora Lindner</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Facsimile No. +41 22 740 14 35</td> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Telephone No. +41 22 338 89 65</td> </tr> </table> </td> </tr> </table>	Date of issuance of this report 21 October 2005 (21.10.2005)	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border-bottom: 1px solid black; padding-bottom: 5px;">Authorized officer</td> <td style="width: 50%; text-align: center; padding: 5px;">Nora Lindner</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Facsimile No. +41 22 740 14 35</td> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Telephone No. +41 22 338 89 65</td> </tr> </table>	Authorized officer	Nora Lindner	Facsimile No. +41 22 740 14 35	Telephone No. +41 22 338 89 65
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Facsimile No. +41 22 740 14 35	Telephone No. +41 22 338 89 65						

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

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27 JUL 2004

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.  
PCT/NL2004/000254

International filing date (day/month/year)  
14.04.2004

Priority date (day/month/year)  
16.04.2003

International Patent Classification (IPC) or both national classification and IPC  
C08G83/00

Applicant  
DSM IP ASSETS B.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/NL2004/000254

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material:  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing:  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/NL2004/000254

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**Box No. II Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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**Box No. V Reasoned statement under Rule 43*bis*.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-7
	No: Claims	
Inventive step (IS)	Yes: Claims	1-7
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

2. Citations and explanations

see separate sheet

**ad item V:**

**Invention:**

The application refers to isotropic polymeric networks with a density lower than 1000 kg/m<sup>3</sup> and a specific Young's modulus of at least 0.01 GPa.m<sup>3</sup>/kg (claim 4), shaped articles prepared therefrom (claim 6), their use as construction material (claim 7) and a process for the production of an isotropic polymeric network (claim 1). Expression (I) in claim 1 refers to the concentration of the reactants in the solution.

**Cited documents:**

- D1: WO 02 100867 A (UNIV MICHIGAN ;CHOI JIWON (US); LAINE RICHARD M (US); TAMAKI RYO () 19 December 2002
- D2: TAMAKI R ET AL: 'A POLYIMIDE NANOCOMPOSITE FROM OCTA(AMINOPHENYL)SILSESQUIOXANE' CHEMISTRY OF MATERIALS, AMERICAN CHEMICAL SOCIETY, WASHINGTON, US, vol. 15, 17 January 2003 (2003-01-17), pages 793-797, XP001153895 ISSN: 0897-4756 .

**Novelty:**

Isotropic polymeric networks according to claim 4 are not known from the available prior art. Example 16 of D1 and the example on page 794, right column of D2 disclose a method for the preparation of a polyimide nanocomposite which corresponds to claim 1 of the application. However, as shown in Comparative Experiment A, the examples of D1 and D2 do not fulfill the expression (I) of claim 1. A network according to claim 4 could not be obtained. Thus the subject-matter of claims 1 and 4 is novel.

**Inventive Step:**

Object of the application is the provision of isotropic polymeric networks having a low density and a high Young's modulus. The examples demonstrate that this object is met by the networks of claim 4 and the process of claim 1. The cited prior art does not give a hint to the skilled person in order to solve the problem as posed. Thus the claimed subject-matter involves as well an inventive step.